Attorney Docket No. 9268-3 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Brian Lora et al.
Application No.: 10/784,605
Filed: February 23, 2004
For: SYSTEMS, METHODS AND COMPUTER PROGRAM PRODUCTS FOR MANAGING A PLURALITY OF REMOTELY LOCATED DATA STORAGE SYSTEMS

Confirmation No.: 8338
Group Art Unit: 2166
Examiner: Usmaan Saeed

October 15, 2007

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

Sir:

This *Appeal Brief* is filed in response to the *Final Office Action* ("Final Action") mailed June 29, 2007, and pursuant to the *Notice of Appeal to the Board of Patent Appeals and Interferences* filed October 12, 2007.

It is not believed that an extension of time and/or additional fee(s) are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned under 37 C.F.R. § 1.136(a). Any additional fees believed to be due may be charged to Deposit Account No. 50-0220.

Real Party in Interest

The real party in interest is assignee Arsenal Digital Solutions Worldwide, Inc. of Cary, North Carolina.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

Claims 1-60 are pending, each of which stands finally rejected. Appellants appeal the final rejection of Claims 1-60. The attached Claims Appendix presents the pending claims as entered in the *Final Action* mailed June 29, 2007.

Status of Amendments

The attached Claims Appendix presents the claims as they currently stand. An *Amendment* was filed in this case on October 16, 2006. This *Amendment* was entered.

Summary of Claimed Subject Matter

I. Claim 1

Independent Claim 1 is directed to a data storage management system that may be used to manage a plurality of remotely located, independent data storage systems. The following summary of Claim 1 will be done with reference to one particular embodiment, namely the data storage management system **10** that is depicted in FIG. 1 of the present application.

As shown in FIG. 1, the data storage management system includes a central monitoring system **12**. (Application at p. 11, lines 1-2; p. 19, line 31 through p. 23, line 19). The central monitoring system **12** is in communication with a plurality of remotely located, independent data storage systems **14**. (Application at p. 11, lines 1-5). The central monitoring system **12** is located at a geographical location different from a geographical location of each respective one of the independent data storage systems **14**. (Application at p. 11, lines 5-8). The central monitoring system **12** includes a central data repository for data regarding the status of each of the remotely located, independent data storage systems **14**. (Application at p. 11, lines 11-16).

The data storage management system **10** further includes a plurality of remote agent systems **16**. (Application at p. 11, lines 8-11; p. 13, line 22 through p. 19, line 29). One specific embodiment of a remote agent system **16** is depicted in FIG. 2 of the present Application. Each remote agent system **16** communicates with a respective one of the remotely located data storage systems **14**. (Application at p. 11, lines 11-13). Each remote agent system **16** collects metadata regarding the data stored at a respective remotely located data storage system **14**, converts the collected data to a standardized format, and stores the collected data in the central data repository such as, for example, a database, of the central monitoring system **12**. (Application at p. 11, lines 11-16; p. 13, lines 1-3; p. 13, line 31 through p. 14, line 5).

II. Claim 15

The initial recitations of Independent Claim 15 are identical to the recitations of Independent Claim 1. Accordingly, independent Claim 15 is likewise directed to a data storage management system that may be used to manage a plurality of remotely located, independent data storage systems. The following discussion of Claim 15 will once again be done with reference to one particular embodiment thereof, namely the data storage management system **10** that is depicted in FIG. 1 of the present application.

As shown in FIG. 1, the data storage management system includes a central monitoring system **12**. (Application at p. 11, lines 1-2; p. 19, line 31 through p. 23, line 19). The central monitoring system **12** is in communication with a plurality of remotely located, independent data storage systems **14**. (Application at p. 11, lines 1-5). The central monitoring system **12** is located at a geographical location different from a geographical location of each respective one of the independent data storage systems **14**. (Application at p. 11, lines 5-8). The central monitoring system **12** includes a central data repository for data regarding the status of each of the remotely located, independent data storage systems **14**. (Application at p. 11, lines 11-16).

The data storage management system **10** further includes a plurality of remote agent systems **16**. (Application at p. 11, lines 8-11; p. 13, line 22 through p. 19, line 29). One specific embodiment of a remote agent system **16** is depicted in FIG. 2 of the present Application. Each remote agent system **16** communicates with a respective one of the remotely located data storage systems **14**. (Application at p. 11, lines 11-13). Each remote agent system **16** collects metadata regarding the data stored at a respective remotely located data storage system **14**, converts the collected data to a standardized format, and stores the collected data in the central data repository such as, for example, a database, of the central monitoring system **12**. (Application at p. 11, lines 11-16; p. 13, lines 1-3; p. 13, line 31 through p. 14, line 5).

In addition, in the data storage management of Claim 15, each remote agent system (e.g., remote agent system **16**) includes pattern recognition logic that can identify data patterns that precede fault conditions at a respective remotely located data storage system. (Application at p. 12, lines 16-20 and p. 18, lines 20-23). Each remote agent system (e.g., remote agent system **16**) also includes action logic that directs the remote agent system **16** to

perform one or more corrective actions at a respective remotely located data storage system **14** in response to identifying a data pattern known to precede a fault condition. (Application at p. 12, lines 20-24 and p. 18, lines 23-28).

III. Claim 27

The initial recitations of Independent Claim 27 are identical to the recitations of Independent Claim 1. Accordingly, independent Claim 27 is likewise directed to a data storage management system that may be used to manage a plurality of remotely located, independent data storage systems. The following discussion of Claim 27 will once again be done with reference to one particular embodiment thereof, namely the data storage management system **10** that is depicted in FIG. 1 of the present application.

As shown in FIG. 1, the data storage management system includes a central monitoring system **12**. (Application at p. 11, lines 1-2; p. 19, line 31 through p. 23, line 19). The central monitoring system **12** is in communication with a plurality of remotely located, independent data storage systems **14**. (Application at p. 11, lines 1-5). The central monitoring system **12** is located at a geographical location different from a geographical location of each respective one of the independent data storage systems **14**. (Application at p. 11, lines 5-8). The central monitoring system **12** includes a central data repository for data regarding the status of each of the remotely located, independent data storage systems **14**. (Application at p. 11, lines 11-16).

The data storage management system **10** further includes a plurality of remote agent systems **16**. (Application at p. 11, lines 8-11; p. 13, line 22 through p. 19, line 29). One specific embodiment of a remote agent system **16** is depicted in FIG. 2 of the present Application. Each remote agent system **16** communicates with a respective one of the remotely located data storage systems **14**. (Application at p. 11, lines 11-13). Each remote agent system **16** collects metadata regarding the data stored at a respective remotely located data storage system **14**, converts the collected data to a standardized format, and stores the collected data in the central data repository such as, for example, a database, of the central monitoring system **12**. (Application at p. 11, lines 11-16; p. 13, lines 1-3; p. 13, line 31 through p. 14, line 5).

In addition, in the data storage management system of Claim 27, each remote agent system (e.g., remote agent system **16**) may include one or more element information

managers (EIMs) **30**, one or more service information managers (SIMs) **32**, and one or more platform information manager (PIMs) **34**. (Application at p. 16, line 21 through p. 17, line 34). Each EIM **30** may be configured to communicate with a respective data source at a remotely located data storage system **14** and convert data from the data source **14** to the standardized format. (Application at p. 16, line 34 through p. 17, line 20). Each SIM **32** is configured to communicate with EIMs **30** associated with a common data application. (Application at p. 17, lines 21-26). Each PIM **34** is configured to communicate with SIMs **32** associated with a common data application platform. (Application at p. 16, lines 27-34). The data storage management system of Claim 27 further includes an activity director **36** that is configured to communicate with each EIM **30**, SIM **32** and PIM **34** and to instruct each EIM **30**, SIM **32** and PIM **34** as to what information to collect and store. (Application at p. 17, line 35 through p. p. 17, line 20).

The data storage management system of Claim 27 further includes a plurality of customer portals, such as the customer portals **20** of FIG. 1. (Application at p. 11, lines 18-19). Each customer portal **20** is associated with a respective one of the remotely located data storage systems **14** and with the central monitoring system **12**. (Application at p. 11, lines 19-22). Each customer portal **20** provides user access to information about a respective one of the remotely located data storage systems. (Application at p. 11, lines 22-25).

IV. Claim 39

Independent Claim 39 is directed to a method of managing a remotely located, independent data storage system such as, for example, the data storage management system **10** that is depicted in FIG. 1 of the present application. Pursuant to the method of Claim 39, data regarding the status of one of the remotely located, independent data storage systems **14** is collected from the remotely located data storage system **14**. (Application at p. 24, lines 22-27 and FIG. 9). The collected data is converted to a standardized format. (Application at p. 24, lines 27-28 and FIG. 9). The collected data in the standardized format is stored in a data repository of a central monitoring system **12**. (Application at p. 25, lines 5-7 and FIG. 9). The central monitoring system **12** is located at a geographical location different from a geographical location of the remotely located data storage system **14**. (Application at p. 11, lines 5-8). The collected data is analyzed to identify data patterns that precede fault

conditions at the remotely located data storage system **14**. (Application at p. 25, lines 7-10; p. 12, lines 16-20 and p. 18, lines 20-23).

IV. Claim 50

Independent Claim 50 is directed to a computer program product for managing a remotely located, independent data storage system such as, for example, the data storage management system **10** that is depicted in FIG. 1 of the present application. The computer program product includes a computer usable storage medium having computer readable program code embodied in the medium. (Application at p. 8, line 12 through p. 10, line 32). The computer readable program code includes computer readable program code that collects data regarding the status of a remotely located, independent data storage system **14**. (Application at p. 24, lines 22-27 and FIG. 9). The computer readable program code also includes code that converts the collected data to a standardized format. (Application at p. 24, lines 27-28 and FIG. 9). The computer readable program code further includes code that stores the standardized format collected data in a data repository of a central monitoring system **12**. (Application at p. 25, lines 5-7 and FIG. 9). The central monitoring system **12** is located at a geographical location different from a geographical location of the remotely located data storage system **14**. (Application at p. 11, lines 5-8). Finally, the computer readable program code also analyzes the collected data to identify data patterns that precede fault conditions at the remotely located data storage system. (Application at p. 25, lines 7-10; p. 12, lines 16-20 and p. 18, lines 20-23).

Grounds of Rejection to be Reviewed on Appeal

1. Appellant respectfully requests that the rejections of Claims 1-60 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0198984 to Goldstein et al. ("Goldstein") in view of U.S. Patent Publication No. 2004/0102925 to Giffords ("Giffords") be reversed.

Argument

I. The Rejections Under 35 U.S.C. § 103

Claims 1-60 stand rejected as obvious under 35 U.S.C. § 103 over Goldstein in view of Giffords. Appellants respectfully request reversal of these rejections.

A. The Rejection of Claims 1, 6, 11 and 13

Independent Claim 1 recites:

> 1. A data storage management system for managing a plurality of remotely located, independent ***data storage systems***, comprising:
>
> a central monitoring system located at a geographical location different from a geographical location of each respective remotely located, independent data storage system, wherein the central monitoring system comprises a central data repository for data regarding the status of each of the remotely located, independent data storage systems; and
>
> a plurality of remote agent systems, wherein each remote agent system communicates with a respective one of the remotely located data storage systems, wherein ***each remote agent system collects metadata regarding the data stored at a respective remotely located data storage system***, converts the collected data to a standardized format, and stores the collected data in the central data repository.

(Emphasis added). The *Final Action* states that Goldstein discloses every recitation of independent Claim 1 except for the remote agent systems "convert[ing] the collected data to a standardized format", which the *Final Action* states is taught by Giffords. (*Final Action* at pp. 2-4). Appellants respectfully submit, however, that the combination of Goldstein and Giffords does not render Claim 1 unpatentable for at least two independent reasons.

First, Goldstein discloses a system for monitoring the performance of **transactional servers** as opposed to a "system for managing a plurality of remotely located, independent **data storage systems**" as recited in Claim 1. (*See, e.g.,* Goldstein at Abstract). As discussed in Goldstein, a "transactional server" is a "multi-user system which responds to requests from users to perform one or more tasks or 'transactions' such as viewing account information, placing an order, performing a search, or viewing and sending electronic mail." (Goldstein at ¶ 0085). The system of Goldstein uses "agents" that "simulate the actions of actual users of the transactional server" in order to monitor and report on the performance (e.g., response time) of the transactional server. In contrast, the "data storage management" of Claim 1 refers to "any type of data storage service including, but not limited to, data backup and recovery, primary data storage, data archiving, business continuity and disaster recovery, and remote data storage management." (Application at 7-8). As such, the combination of Goldstein and Giffords set forth in the pending rejections does **not** disclose or suggest a" system for managing a plurality of remotely located, independent **data storage systems**" as recited in Claim 1.

More importantly, Appellants respectfully submit that the combination of Goldstein and Giffords does **not** disclose or suggest that "each remote agent system collects **metadata regarding the data stored**" as is further recited in Claim 1. As is well known to those of skill in the art, and as can be confirmed by reference to standard dictionaries, metadata refers to "data about data." The *Final Action* states that the "Examiner interprets [the] performance data and status data [discussed at paragraphs 0020 and 0076 of Goldstein] as metadata being collected from the remote storage systems, which stores transactional data." (*Final Action* at 4). Appellants respectfully submit, however, that this interpretation is directly contrary to the express teachings of Goldstein.

In particular, the "agents" of Goldstein simulate the actions of actual users by sending requests to the transactional server and then monitoring and reporting on the performance of the server in response to the test. Consistent with this, Goldstein expressly states that the "performance data" described therein comprises, for example, "**transaction response times, server response times, network response times and measured segment delays along network paths**." (Goldstein at Abstract; *see also* Goldstein at ¶ 14, stating that the "performance data may include, for example, the server response time and pass/fail status of each transaction execution event"). In contrast, what Claim 1 recites is that the agent systems collect **metadata** – i.e., data about data – **regarding the data stored** at remote data storage systems. None of the "performance data" of Goldstein comprises "data about stored data", but instead comprises **metrics of the performance of transactional servers**. Likewise, FIGS. 13-16 of Goldstein illustrate the "status data" of Goldstein that the *Final Action* contends corresponds to the "metadata" of Claim 1. (*See, e.g.*, Goldstein at ¶¶ 0029, 0076, 0123). As shown in these figures, the "status data" comprises response time data that shows how long the transactional servers took to complete a transaction. Needless to say, such server response time data does not comprise **metadata regarding the data stored** at remote data storage systems, which is what Claim 1 is directed to.

While Appellants appreciate that the Examiner may rely on the broadest reasonable interpretation of the claims for purposes of examination, it is simply not reasonable to interpret server performance data such as response time data to comprise metadata about data stored in a remote data storage system. The status and performance data of Goldstein are neither "metadata" nor "data regarding [stored data]" as is recited in Claim 1. As such, the

failure of the cited art to disclose or suggest a "remote agent system [that] collects **metadata regarding the data stored** at a respective remotely located data storage system" provides a second, independent basis for reversal of the rejection of Claim 1.

Appellants note that in the Response to Arguments section of the *Final Action*, the Examiner attempts to modify the rejection of Claim 1. In particular, the Examiner argues that Gifford – as opposed to Goldstein – "teaches performance data/metadata about the different storage systems." (*Final Action* at p. 27). This argument likewise fails for several reasons.

First, the Response to Arguments section is not part of the rejection. If the Examiner intended to introduce new rejections, he may clearly do so, but not while rendering a *Final Action* against unamended claims. Thus, the new grounds of "rejection" set forth in the Response to Arguments section is not properly before the Board on this appeal.

Second, and more importantly, the *Final Action* fails to provide any basis for combining Goldstein and Giffords in the manner set forth in the Response to Arguments section. As noted above, Goldstein is directed to a system that monitors the performance of transactional servers. (*See* Goldstein at Abstract). In contrast, Giffords is directed to storage system performance monitoring systems that allow for performance metric comparisons between multiple storage systems. (*See, e.g.,* Giffords at Abstract and ¶ 12). The *Final Action* fails to identify any reasons that one of skill in the art would have allegedly been motivated to pick and choose aspects of these two disparate systems as has been done in the Response to Arguments section of the *Final Action* to allegedly arrive at the data storage management system of Claim 1. In fact, the only apparent motivation is hindsight based on the present invention. Accordingly, this provides a second, independent basis for rejecting the new grounds of "rejection" for Claim 1 set forth in the Response to Arguments section of the *Final Action*.

Finally, the alleged "performance data/metadata" of Giffords referenced in the Response to Arguments section of the *Final Action* appears to be the timing patterns **44, 45** and/or the performance metric data **46, 47** of Giffords. (*See Final Action* at p. 27). However, neither of these types of data of Giffords comprise "**metadata regarding the data stored** at a respective remotely located data storage system" as is recited in Claim 1. In particular, the timing patterns **44, 45** of Giffords comprise time increments corresponding to collection times of the performance metric data. (*See* Giffords at ¶ 0027). The "performance metric

data **46, 47** correspond to monitored activities (*e.g.*, I/O operations per second) of the respective storage systems." (Giffords at ¶ 0028). Thus, as the "performance data" of Gifford is not metadata regarding stored data, the newly raised grounds of rejection also fails to provide a proper basis for rejecting Claim 1.

Thus, the rejection of Claim 1 should be reversed for each of the above reasons.

Claims 6, 11 and 13 each depend from Claim 1, and hence are patentable over the cited art for at least the reasons, discussed above, that Claim 1 is patentable over the cited art.

B. The Rejection of Claim 2

Claim 2 depends from Claim 1, and hence the rejection of Claim 2 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 2 is independently patentable over the cited art.

In particular, Claim 2 recites that each remote agent system includes "pattern recognition logic that can identify data patterns that precede fault conditions at a respective remotely located data storage system." The *Final Action* cites to paragraph 0017 of Goldstein as disclosing such pattern recognition logic. (*Final Action* at pp. 4-5). However, as conceded in the *Final Action*, what the cited portion of Goldstein discusses is programming the agents to perform screen captures and to transmit these screen captures to the report server when a transaction fails. (*Final Action* at p. 5; Goldstein at ¶ 0017). A screen capture program clearly does **not** comprise pattern recognition logic, which is software, hardware and/or firmware that detects a predetermined pattern and initiates a programmed course of action in response thereto. (Application at p. 18, lines 20-25). Software that captures and transmits screens simply does not involve detecting a predetermined pattern. Moreover, Claim 2 recites that the pattern recognition logic identifies the data patterns "that **precede** fault conditions." In contrast, the screen capture software of Goldstein is activated "**when** a transaction fails." (Goldstein at ¶ 0017). Accordingly, the cited portion of Goldstein fails to disclose or suggest the subject matter of Claim 2 for at least each of the above additional reasons.

The Response to Arguments section of the *Final Action* takes the position that the screen capture program meets the recitation of Claim 2 because it "allows the user to view the sequence of events, as 'seen' by an agent, that led to the error condition." (*Final Action* at p. 28). However, actions taken by a user simply do not comprise "pattern recognition logic"

and, as discussed above, the screen capture data is only performed after a transaction fails, and hence does not identify data patterns that precede a fault condition.

The Response to Arguments section of the *Final Action* also takes the position that paragraph 0117 of Goldstein discloses uploading test scripts to the server which allegedly monitor transaction servers for any alarm conditions. (*Final Action* at p. 28). Once again, however, the cited portion of Goldstein fails to disclose or suggest the subject matter of Claim 2. As conceded in the *Final Action*, any such "test scripts" are uploaded to the transactional server as opposed to the remote agent. Moreover, any such test scripts simply monitor for actual failures, and clearly are not pattern recognition logic that identify data patterns that precede fault conditions. Thus, for all of the above reasons, Appellants respectfully submit that the rejection of Claim 2 should be reversed.

C. The Rejection of Claim 3

Claim 3 depends from Claim 1, and hence the rejection of Claim 3 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 3 is independently patentable over the cited art.

Claim 3 recites, among other things, that "a **single** remote agent system collects the metadata from its respective remotely located data storage system." The *Final Action* appears to take the position that the reports server **36** of Goldstein comprises the single remote agent system of Claim 3. (*Final Action* at 5). However, this position is inconsistent with the rejection of Claim 1, which takes the position that the agents **32** of Goldstein correspond to the remote agent system of Claim 1, and that the reports server **36** of Goldstein corresponds to the "central monitoring system" of Claim 1. (*Final Action* at pp. 2-3). In any event, Goldstein expressly teaches that a **plurality** of agents monitor each transactional server, and hence Goldstein does not disclose or suggest the subject matter of Claim 3.

Additionally, Claim 3 further recites that "each remote agent system consolidates the collected data prior to storing the collected data in the central data repository." The Final Action concedes that Goldstein does not disclose this recitation of Claim 3, and instead relies on Giffords "rearranging" of performance metric data as teaching the consolidation of data recited in Claim 3. (*Final Action* at 6). Appellants respectfully submit, however, that arranging data values into a common representation does not necessarily mean that the data is consolidated. By way of example, data values could be "rearranged" to all be expressed in

non-exponential format without any consolidation of the actual data. More importantly, Claim 3 recites that **each remote agent system** performs the consolidation function. In contrast, Giffords clearly states that the "processing circuitry **38**" that rearranges the data into a common representation format is part of the management station **32** and not part of any remote agent. (*See* Giffords at Fig. 1 and ¶ 0032). Appellants note that the Response to Arguments section of the *Final Action* does not even mention Claim 3 or attempt to rebut Appellants showing in their October 16, 2006 Amendment that Claim 3 is patentable over the cited art. In any event, the cited art clearly fails to disclose or suggest the last clause of Claim 3, providing yet another basis for reversal of the rejection of Claim 3.

D. The Rejection of Claim 4

Claim 4 depends from Claim 1, and hence the rejection of Claim 4 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 4 is independently patentable over the cited art.

Claim 4 recites that "**each remote agent system filters collected data prior to communicating the collected data** to the central monitoring system to reduce an amount of data communicated to the central monitoring system." The *Final Action* cites to paragraph 0127 of Goldstein as disclosing the recitations of Claim 4. (*Final Action* at pp. 6-7). However, the cited portion of Goldstein refers to a filtering option that **users of the system** can apply when viewing information on the reports server. (Goldstein at ¶ 0127). As such, the cited portion of Goldstein fails to disclose or suggest (1) having each "remote agent system" filter collected data or (2) filtering the "collected data prior to communicating the collected data" as recited in Claim 4. The Response to Arguments section of the *Final Action* acknowledges that Appellants have challenged the Examiner's rejection of Claim 4, but then simply proceeds to repeat the argument from the body of the *Final Action*, and does not address the substance of Appellants argument regarding the deficiencies with the rejection of Claim 4. As such, the rejection of Claim 4 should be reversed for at least each of these additional reasons.

E. The Rejection of Claim 5

Claim 5 depends from Claim 1, and hence the rejection of Claim 5 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 5 is independently patentable over the cited art.

Claim 5 recites that "each remote agent system comprises action logic that directs the remote agent system to perform one or more corrective actions at a respective remotely located data storage system in response to identifying a data pattern known to precede a fault condition." The *Final Action* cites to paragraph 0261 of Goldstein as disclosing the recitations of Claim 5. (*Final Action* at p. 7). However, the cited portion of Goldstein refers to an automated root cause analysis application that is **coupled to the reports server** that may be used to analyze performance data after the agents transmit the performance data to the reports server. (*See, e.g.*, Goldstein at ¶ 0191-0195, 0261 and Figs. 1 and 26). The Response to Arguments section of the *Final Action* acknowledges that Appellants have challenged the Examiner's rejection of Claim 5, but then, once again, simply proceeds to repeat the argument from the body of the *Final Action*. In any event, the cited portion of Goldstein fails to disclose or suggest at least including action logic **at each remote agent system** that performs corrective actions as recited in Claim 5. As such, the rejection of Claim 5 should be reversed for at least each of these additional reasons.

F. The Rejection of Claim 7

Claim 7 depends from Claim 1, and hence the rejection of Claim 7 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 7 is independently patentable over the cited art.

Claim 7 recites that each remote agent system includes "one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at a remotely located data storage network and convert data from the data source to the standardized format; one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application; one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store." The *Final*

Action cites to paragraphs 0148, 0097, 0021 and Fig. 1 of Goldstein, along with the Abstract and paragraph 0021 of Giffords, as disclosing each of the recitations of Claim 7. (*Final Action* at pp. 8-11). However, the cited portions of Goldstein and Giffords clearly fail to disclose or suggest the recitations of Claim 7.

For example, the *Final Action* states that the root cause analysis or "RCA" system of Goldstein comprises the "activity director" of Claim 7. (*Final Action* at p. 9). However, as discussed above, the root cause analysis system of Goldstein is coupled to the reports server and operates on data forwarded by the agents, and thus clearly is not part of a remote agent system. Moreover, Claim 7 recites that each of a **plurality** of agents includes an 'activity director", whereas the system of Goldstein has a **single** root cause analysis application. Likewise, the *Final Action* states that the controller **34** of Goldstein comprises the SIMs and the PIMs of Claim 7. (*Final Action* at p. 8). However, the controller **34** also is not part of the agents of Goldstein, and only a single controller is provided in Goldstein, whereas Claim 7 recites a plurality of SIMs and PIMs. Appellants likewise respectfully submit that the combination of Goldstein and Giffords do not disclose the EIMs of Claim 7. Thus, the rejection of Claim 7 should be reversed for at least these additional reasons.

G. The Rejections of Claims 8 and 9

Claim 8 depends from Claim 1, and hence the rejection of Claim 8 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 8 is independently patentable over the cited art.

Claim 8 recites that "each remotely located data storage system comprises one or more data storage devices." The *Final Action* cites to paragraph 0018 of Giffords as disclosing the recitation of Claim 8. (*Final Action* at p. 11). Appellants respectfully submit, however, that one of skill in the art would have had no motivation to combine Goldstein and Giffords in the manner of the pending rejections except for hindsight based on the teachings of the present invention. As noted above, Goldstein does not involve the remote management of data storage devices. Instead, Goldstein provides a way of testing transaction servers using remote agents that simulate the actions of actual users of a transactional server to monitor and test the performance (*e.g.*, speed) of the transactional server so that a variety of end user experiences can be "captured." (*See, e.g.*, Goldstein at ¶¶ 0012, 0073). While Giffords involves a storage system, there is simply no motivation to use the system of Goldstein on the

data storage system of Giffords. The reason that Goldstein uses distributed agents to monitor the transactional servers is because problems with the transactional servers may be dependent on attributes of typical end users such as the user's location, computer configuration, internet router or internet service provider. (*See, e.g.,* Goldstein at ¶ 0008). Thus, by using a plurality of agents to monitor each individual server, the system of Goldstein is more likely to detect the problems that typical users of the server are encountering. There is no teaching or suggestion that such monitoring would be beneficial for remotely located data storage systems. Accordingly, Appellants respectfully submit that Claim 8 is likewise patentable over the cited references for at least this additional reason.

Claim 9 depends from Claim 8, and hence is patentable over the cited art for at least the reasons, discussed above, that Claim 8 is patentable over the cited art.

H. The Rejection of Claim 10

Claim 10 depends from Claim 1, and hence the rejection of Claim 10 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 10 is independently patentable over the cited art.

Claim 10 recites that "the central monitoring system is configured to communicate corrective action information to each respective remote agent system and wherein each remote agent system is configured to implement the corrective action in response thereto." The *Final Action* cites to paragraph 0261 of Goldstein as disclosing the recitations of Claim 10. (*Final Action* at pp. 12-13). However, the cited portion of Goldstein refers to actions that are taken at network elements in response to an automated root cause analysis application. (Goldstein at ¶ 0261). Significantly, the cited portion of Goldstein fails to disclose or suggest having "the central monitoring system . . . communicate corrective action information **to each respective remote agent system**", as instead Goldstein involves having an application that is connected to the reports server communicate corrective action to elements in the network. Goldstein likewise does not disclose having "**each remote agent system . . . implement the corrective action**" as recited in Claim 10, as the 'agents" of Goldstein have nothing to do with the implementation of the corrective action measures. As such, the rejection of Claim 10 should be reversed for at least each of these additional reasons.

I. The Rejection of Claim 12

Claim 12 depends from Claim 1, and hence the rejection of Claim 12 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 12 is independently patentable over the cited art.

Claim 12 recites that "the central monitoring system is configured to analyze information from each remote agent system and identify patterns known to precede data storage problems at a respective remotely located data storage system." The *Final Action* cites to paragraph 0017 of Goldstein as disclosing such pattern recognition logic. (*Final Action* at p. 14). However, the cited portion of Goldstein does not disclose "identify[ing] patterns known to precede data storage problems" as recited in Claim 12, but instead discusses having the agents transmit screen captures to the reports server when a transaction fails so that a user can view the sequence of events that preceded the transaction failure. (Goldstein at ¶ 0017). Applicants respectfully submit that the "user" of Goldstein is not a "central monitoring system", and that there is no discussion in Goldstein of the user or a central monitoring system analyzing data to "identify patterns known to precede data storage problems." Accordingly, the cited portion of Goldstein fails to disclose or suggest the subject matter of Claim 12 for at least each of the above additional reasons.

J. The Rejection of Claim 14

Claim 14 depends from Claim 1, and hence the rejection of Claim 14 should be reversed for at least the reasons that the rejection of Claim 1 should be reversed. Additionally, Appellants respectfully submit that Claim 14 is independently patentable over the cited art.

Claim 14 recites that "each customer portal allows user control and configuration of a remotely located data storage system." The *Final Action* cites to paragraph 0226 of Goldstein as disclosing the recitations of Claim 14. (*Final Action* at pp. 15-16). However, the cited portion of Goldstein makes no reference to "allow[ing] user control and configuration of a remotely located data storage system" – instead, it refers to letting users analyze performance, which is very different than allowing for user control and configuration. (Goldstein at ¶ 0226). As such, the rejection of Claim 14 should be reversed for at least each of these additional reasons.

K. The Rejections of Claims 15, 18, 23, 25, 39, 41, 44, 48, 50, 52 and 55-56

Independent Claim 15, as amended, includes all of the recitations of Claim 1. Accordingly, Claim 15 is patentable for each of the reasons, discussed above, that Claim 1 is patentable over the cited art. In addition, Claim 15 includes the recitations of Claims 2 and 5. Accordingly, Claim 15 is also patentable over the cited art for the additional reasons discussed above with respect to Claims 2 and 5.

The Office Action states Claims 39, 41, 50 and 52 are the "same as" Claim 15, and rejects these claims based on the same rationale. Accordingly, the rejections of Claims 39, 41, 50 and 52 should be withdrawn for the same reasons that the rejection of Claim 15 should be withdrawn.

Claims 18, 23 and 25 depend from Claim 15, Claims 44 and 48 depend from Claim 39 and Claims 55-56 depend from Claim 50. As such, the rejections of Claims 18, 23, 25, 44, 48 and 55-56 should be reversed for at least the reasons that the rejections of the claims from which they depend should be reversed.

L. The Rejection of Claims 16, 40 and 51

Claim 16 depends from Claim 15, Claim 40 depends from Claim 39 and Claim 51 depends from Claim 50. As such, the rejections of Claims 16, 40 and 51 should be reversed for at least the reasons that the rejections of Claims 15, 39 and 50, respectively, should be reversed. Additionally, Claims 16, 40 and 51 each include the exact recitations of Claim 3, or recitations similar thereto, and the *Final Action* states that Claims 16, 40 and 51 are the "same as" Claim 3 and "are rejected for the same reasons." (*Final Action* at p. 6). Accordingly, the rejections of Claims 16, 40 and 51 should also be reversed for the reasons, discussed above, that the rejection of Claim 3 should be reversed.

M. The Rejection of Claims 17, 46 and 57

Claim 17 depends from Claim 15, Claim 46 depends from Claim 39 and Claim 57 depends from Claim 50. As such, the rejections of Claims 17, 46 and 57 should be reversed for at least the reasons that the rejections of Claims 15, 39 and 50, respectively, should be reversed. Additionally, Claims 17, 46 and 57 each include the exact recitations of Claim 4, or recitations similar thereto, and the *Final Action* states that Claims 17, 46 and 57 are the "same

as" Claim 4 and "are rejected for the same reasons." (*Final Action* at p. 7). Accordingly, the rejections of Claims 17, 46 and 57 should also be reversed for the reasons, discussed above, that the rejection of Claim 4 should be reversed.

N. The Rejection of Claims 47 and 58

Claim 47 depends from Claim 39 and Claim 58 depends from Claim 50. As such, the rejections of Claims 47 and 58 should be reversed for at least the reasons that the rejections of Claims 39 and 50, respectively, should be reversed. Additionally, Claims 47 and 58 each include the exact recitations of Claim 5, or recitations similar thereto, and the *Final Action* states that Claims 47 and 58 are the "same as" Claim 5 and "are rejected for the same reasons." (*Final Action* at p. 8). Accordingly, the rejections of Claims 47 and 58 should also be reversed for the reasons, discussed above, that the rejection of Claim 5 should be reversed.

O. The Rejection of Claims 19, 49 and 60

Claim 19 depends from Claim 15, Claim 49 depends from Claim 39 and Claim 60 depends from Claim 50. As such, the rejections of Claims 19, 49 and 60 should be reversed for at least the reasons that the rejections of Claims 15, 39 and 50, respectively, should be reversed. Additionally, Claims 19, 49 and 60 each include the exact recitations of Claim 7, or recitations similar thereto, and the *Final Action* states that Claims 19, 49 and 60 are the "same as" Claim 7 and "are rejected for the same reasons." (*Final Action* at p. 8). Accordingly, the rejections of Claims 19, 49 and 60 should also be reversed for the reasons, discussed above, that the rejection of Claim 7 should be reversed.

P. The Rejection of Claim 20

Claim 20 depends from Claim 15, and hence the rejection of Claim 20 should be reversed for at least the reasons that the rejection of Claim 15 should be reversed. Additionally, Claim 20 adds the recitation of Claim 8 to Claim 15, and the *Final Action* states that Claim 20 is the "same as" Claim 8 and "is rejected for the same reasons." (*Final Action* at p. 12). Accordingly, the rejection of Claim 20 should also be reversed for the reasons, discussed above, that the rejection of Claim 8 should be reversed.

Q. The Rejection of Claim 21

Claim 21 depends from Claim 15, and hence the rejection of Claim 21 should be reversed for at least the reasons that the rejection of Claim 15 should be reversed. Additionally, Claim 21 adds the recitation of Claim 9 to Claim 15, and the *Final Action* states that Claim 21 is the "same as" Claim 9 and "is rejected for the same reasons." (*Final Action* at p. 12). Accordingly, the rejection of Claim 21 should also be reversed for the reasons, discussed above, that the rejection of Claim 9 should be reversed.

R. The Rejection of Claims 22, 45 and 56

Claim 22 depends from Claim 15, Claim 45 depends from Claim 39 and Claim 56 depends from Claim 50. As such, the rejections of Claims 22, 45 and 56 should be reversed for at least the reasons that the rejections of Claims 15, 39 and 50, respectively, should be reversed. Additionally, Claims 22, 45 and 56 each include the exact recitations of Claim 10, or recitations similar thereto, and the *Final Action* states that Claims 22, 45 and 56 are the "same as" Claim 10 and "are rejected for the same reasons." (*Final Action* at p. 13). Accordingly, the rejections of Claims 22, 45 and 56 should also be reversed for the reasons, discussed above, that the rejection of Claim 10 should be reversed.

S. The Rejection of Claims 24, 42-43 and 53-54

Claim 24 depends from Claim 15, Claims 42-43 depend from Claim 39 and Claims 53-54 depend from Claim 50. As such, the rejections of Claims 22, 42-43 and 53-54 should be reversed for at least the reasons that the rejections of Claims 15, 39 and 50, respectively, should be reversed. Additionally, Claims 22, 42-43 and 53-54 each include the exact recitations of Claim 12, or recitations similar thereto, and the *Final Action* states that Claims 22, 42-43 and 53-54 are the "same as" Claim 12 and "are rejected for the same reasons." (*Final Action* at p. 14). Accordingly, the rejections of Claims 22, 42-43 and 53-54 should also be reversed for the reasons, discussed above, that the rejection of Claim 12 should be reversed.

T. The Rejection of Claim 26

Claim 26 depends from Claim 15, and hence the rejection of Claim 26 should be reversed for at least the reasons that the rejection of Claim 15 should be reversed. Additionally, Claim 26 adds the recitation of Claim 14 to Claim 15, and the *Final Action*

states that Claim 26 is the "same as" Claim 14 and "is rejected for the same reasons." (*Final Action* at p. 16). Accordingly, the rejection of Claim 26 should also be reversed for the reasons, discussed above, that the rejection of Claim 14 should be reversed.

U. The Rejection of Claim 27

Independent Claim 27 comprises a combination of Claims 1, 7 and 13. Accordingly, Claim 27 is patentable for each of the reasons, discussed above, that Claims 1 and 7 are patentable over the cited art.

Claims 32 and 36 depend from Claim 27. As such, the rejections of Claims 32 and 36 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed.

V. The Rejection of Claim 28

Claim 28 depends from Claim 27, and hence the rejection of Claim 28 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 28 adds the recitation of Claim 2 to Claim 27, and the *Final Action* states that Claim 28 is the "same as" Claim 2 and "is rejected for the same reasons." (*Final Action* at p. 5). Accordingly, the rejection of Claim 28 should also be reversed for the reasons, discussed above, that the rejection of Claim 2 should be reversed.

W. The Rejection of Claim 29

Claim 29 depends from Claim 27, and hence the rejection of Claim 29 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 29 adds the recitation of Claim 3 to Claim 27, and the *Final Action* states that Claim 29 is the "same as" Claim 3 and "is rejected for the same reasons." (*Final Action* at p. 6). Accordingly, the rejection of Claim 29 should also be reversed for the reasons, discussed above, that the rejection of Claim 3 should be reversed.

X. The Rejection of Claim 30

Claim 30 depends from Claim 27, and hence the rejection of Claim 30 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 30 adds the recitation of Claim 4 to Claim 27, and the *Final Action* states that Claim 30 is the "same as" Claim 4 and "is rejected for the same reasons." (*Final Action*

at p. 7). Accordingly, the rejection of Claim 30 should also be reversed for the reasons, discussed above, that the rejection of Claim 4 should be reversed.

Y. The Rejection of Claim 31

Claim 31 depends from Claim 27, and hence the rejection of Claim 31 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 31 adds the recitation of Claim 5 to Claim 27, and the *Final Action* states that Claim 31 is the "same as" Claim 5 and "is rejected for the same reasons." (*Final Action* at p. 8). Accordingly, the rejection of Claim 31 should also be reversed for the reasons, discussed above, that the rejection of Claim 5 should be reversed.

Z. The Rejection of Claim 32

Claim 32 depends from Claim 27, and hence the rejection of Claim 32 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 32 adds the recitation of Claim 5 to Claim 27, and the *Final Action* states that Claim 32 is the "same as" Claim 6 and "is rejected for the same reasons." (*Final Action* at p. 8). Accordingly, the rejection of Claim 32 should also be reversed for the reasons, discussed above, that the rejection of Claim 6 should be reversed.

AA. The Rejection of Claim 33

Claim 33 depends from Claim 27, and hence the rejection of Claim 33 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 33 adds the recitation of Claim 8 to Claim 27, and the *Final Action* states that Claim 33 is the "same as" Claim 8 and "is rejected for the same reasons." (*Final Action* at p. 12). Accordingly, the rejection of Claim 33 should also be reversed for the reasons, discussed above, that the rejection of Claim 8 should be reversed.

BB. The Rejection of Claim 34

Claim 34 depends from Claim 27, and hence the rejection of Claim 34 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 34 adds the recitation of Claim 9 to Claim 27, and the *Final Action* states that Claim 34 is the "same as" Claim 9 and "is rejected for the same reasons." (*Final Action*

at p. 12). Accordingly, the rejection of Claim 34 should also be reversed for the reasons, discussed above, that the rejection of Claim 9 should be reversed.

CC. The Rejection of Claim 35

Claim 35 depends from Claim 27, and hence the rejection of Claim 35 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 35 adds the recitation of Claim 10 to Claim 27, and the *Final Action* states that Claim 35 is the "same as" Claim 10 and "is rejected for the same reasons." (*Final Action* at p. 13). Accordingly, the rejection of Claim 35 should also be reversed for the reasons, discussed above, that the rejection of Claim 10 should be reversed.

DD. The Rejection of Claim 36

Claim 36 depends from Claim 27, and hence the rejection of Claim 36 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 36 adds the recitation of Claim 11 to Claim 27, and the *Final Action* states that Claim 36 is the "same as" Claim 10 and "is rejected for the same reasons." (*Final Action* at p. 14). Accordingly, the rejection of Claim 36 should also be reversed for the reasons, discussed above, that the rejection of Claim 11 should be reversed.

EE. The Rejection of Claim 37

Claim 37 depends from Claim 27, and hence the rejection of Claim 37 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 37 adds the recitation of Claim 12 to Claim 27, and the *Final Action* states that Claim 37 is the "same as" Claim 12 and "is rejected for the same reasons." (*Final Action* at p. 14). Accordingly, the rejection of Claim 37 should also be reversed for the reasons, discussed above, that the rejection of Claim 12 should be reversed.

FF. The Rejection of Claim 38

Claim 38 depends from Claim 27, and hence the rejection of Claim 38 should be reversed for at least the reasons that the rejection of Claim 27 should be reversed. Additionally, Claim 38 adds the recitation of Claim 14 to Claim 27, and the *Final Action* states that Claim 38 is the "same as" Claim 14 and "is rejected for the same reasons." (*Final*

Action at p. 16). Accordingly, the rejection of Claim 38 should also be reversed for the reasons, discussed above, that the rejection of Claim 14 should be reversed.

II. Conclusion

In light of the above, Appellants submit that each of the pending claims is patentable over the cited references and, therefore, request reversal of the rejections of Claims 1-60.

Respectfully submitted,

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CERTIFICATION OF ELECTRONIC TRANSMISSION UNDER 37 CFR § 1.8

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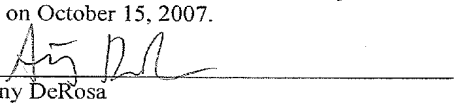

Anthony DeRosa
Date of Signature: October 15, 2007

CLAIMS APPENDIX

Pending Claims USSN 10/784,605
Filed February 23, 2004

1. A data storage management system for managing a plurality of remotely located, independent data storage systems, comprising:

a central monitoring system located at a geographical location different from a geographical location of each respective remotely located, independent data storage system, wherein the central monitoring system comprises a central data repository for data regarding the status of each of the remotely located, independent data storage systems; and

a plurality of remote agent systems, wherein each remote agent system communicates with a respective one of the remotely located data storage systems, wherein each remote agent system collects metadata regarding the data stored at a respective remotely located data storage system, converts the collected data to a standardized format, and stores the collected data in the central data repository.

2. The data storage management system of Claim 1, wherein each remote agent system comprises pattern recognition logic that can identify data patterns that precede fault conditions at a respective remotely located data storage system.

3. The data storage management system of Claim 1, wherein a single remote agent system collects the metadata from its respective remotely located data storage system, and wherein each such single remote agent system consolidates the collected data prior to storing the collected data in the central data repository.

4. The data storage management system of Claim 1, wherein each remote agent system filters collected data prior to communicating the collected data to the central monitoring system to reduce an amount of data communicated to the central monitoring system.

5. The data storage management system of Claim 1, wherein each remote agent system comprises action logic that directs the remote agent system to perform one or more

corrective actions at a respective remotely located data storage system in response to identifying a data pattern known to precede a fault condition.

6. The data storage management system of Claim 1, wherein each remote agent system collects data and hardware information from a respective remotely located data storage system.

7. The data storage management system of Claim 1, wherein each remote agent system comprises:

one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at a remotely located data storage network and convert data from the data source to the standardized format;

one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application;

one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and

an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store.

8. The data storage management system of Claim 1, wherein each remotely located data storage system comprises one or more data storage devices.

9. The data storage management system of Claim 8, wherein the one or more data storage devices comprise a plurality of heterogeneous data storage devices.

10. The data storage management system of Claim 1, wherein the central monitoring system is configured to communicate corrective action information to each respective remote agent system and wherein each remote agent system is configured to implement the corrective action in response thereto.

11. The data storage management system of Claim 1, wherein the central monitoring system is configured to communicate corrective action information to a third party for implementation.

12. The data storage management system of Claim 1, wherein the central monitoring system is configured to analyze information from each remote agent system and identify patterns known to precede data storage problems at a respective remotely located data storage system.

13. The data storage management system of Claim 1, further comprising a plurality of customer portals, each customer portal associated with a respective one of the remotely located data storage systems and with the central monitoring system, wherein each customer portal provides user access to information about a respective one of the remotely located data storage systems.

14. The data storage management system of Claim 13, wherein each customer portal allows user control and configuration of a remotely located data storage system.

15. A data storage management system for managing a plurality of remotely located, independent data storage systems, comprising:

a central monitoring system located at a geographical location different from a geographical location of each respective remotely located, independent data storage system, wherein the central monitoring system comprises a central data repository for data regarding the status of each of the remotely located, independent data storage systems; and

a plurality of remote agent systems, wherein each remote agent system communicates with a respective one of the remotely located data storage systems, wherein each remote agent system collects metadata regarding the data stored at a respective remotely located data storage system, converts the collected data to a standardized format, and stores the collected data in the central data repository, wherein each remote agent system comprises pattern recognition logic that can identify data patterns that precede fault conditions at a respective remotely located data storage system, and wherein each remote agent system comprises

action logic that directs the remote agent system to perform one or more corrective actions at a respective remotely located data storage system in response to identifying a data pattern known to precede a fault condition.

16. The data storage management system of Claim 15, wherein a single remote agent system collects the metadata from its respective remotely located data storage system, and wherein each such single remote agent system consolidates the collected data prior to storing the collected data in the central data repository.

17. The data storage management system of Claim 15, wherein each remote agent system filters collected data prior to communicating the collected data to the central monitoring system to reduce an amount of data communicated to the central monitoring system.

18. The data storage management system of Claim 15, wherein each remote agent system collects data and hardware information from a respective remotely located data storage system.

19. The data storage management system of Claim 15, wherein each remote agent system comprises:

one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at a remotely located data storage network and convert data from the data source to the standardized format;

one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application;

one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and

an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store.

20. The data storage management system of Claim 15, wherein each remotely located data storage system comprises one or more data storage devices.

21. The data storage management system of Claim 20, wherein the one or more data storage devices comprise a plurality of heterogeneous data storage devices.

22. The data storage management system of Claim 15, wherein the central monitoring system is configured to communicate corrective action information to each respective remote agent system and wherein each remote agent system is configured to implement the corrective action in response thereto.

23. The data storage management system of Claim 15, wherein the central monitoring system is configured to communicate corrective action information to a third party for implementation.

24. The data storage management system of Claim 15, wherein the central monitoring system is configured to analyze information from each remote agent system and identify patterns known to precede data storage problems at a respective remotely located data storage system.

25. The data storage management system of Claim 15, further comprising a plurality of customer portals, each customer portal associated with a respective one of the remotely located data storage systems and with the central monitoring system, wherein each customer portal provides user access to information about a respective one of the remotely located data storage systems.

26. The data storage management system of Claim 25, wherein each customer portal allows user control and configuration of a remotely located data storage system.

27. A data storage management system for managing a plurality of remotely located, independent data storage systems, comprising:

a central monitoring system located at a geographical location different from a geographical location of each respective remotely located, independent data storage system, wherein the central monitoring system comprises a central data repository for data regarding the status of each of the remotely located, independent data storage systems;

a plurality of remote agent systems, wherein each remote agent system communicates with a respective one of the remotely located data storage systems, wherein each remote agent system collects metadata regarding the data stored at a respective remotely located data storage system, converts the collected data to a standardized format, and stores the collected data in the central data repository, wherein each remote agent system comprises:

one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at a remotely located data storage network and convert data from the data source to the standardized format;

one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application;

one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and

an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store; and

a plurality of customer portals, each customer portal associated with a respective one of the remotely located data storage systems and with the central monitoring system, wherein each customer portal provides user access to information about a respective one of the remotely located data storage systems.

28. The data storage management system of Claim 27, wherein each remote agent system comprises pattern recognition logic that can identify data patterns that precede fault conditions at a respective remotely located data storage system.

29. The data storage management system of Claim 27, wherein a single remote agent system collects the metadata from its respective remotely located data storage system, and wherein each such single remote agent system consolidates the collected data prior to storing the collected data in the central data repository.

30. The data storage management system of Claim 27, wherein each remote agent system filters collected data prior to communicating the collected data to the central monitoring system to reduce an amount of data communicated to the central monitoring system.

31. The data storage management system of Claim 27, wherein each remote agent system comprises action logic that directs the remote agent system to perform one or more corrective actions at a respective remotely located data storage system in response to identifying a data pattern known to precede a fault condition.

32. The data storage management system of Claim 27, wherein each remote agent system collects data and hardware information from a respective remotely located data storage system.

33. The data storage management system of Claim 27, wherein each remotely located data storage system comprises one or more data storage devices.

34. The data storage management system of Claim 33, wherein the one or more data storage devices comprise a plurality of heterogeneous data storage devices.

35. The data storage management system of Claim 27, wherein the central monitoring system is configured to communicate corrective action information to each respective remote agent system and wherein each remote agent system is configured to implement the corrective action in response thereto.

36. The data storage management system of Claim 27, wherein the central monitoring system is configured to communicate corrective action information to a third party for implementation.

37. The data storage management system of Claim 27, wherein the central monitoring system is configured to analyze information from each remote agent system and identify patterns known to precede data storage problems at a respective remotely located data storage system.

38. The data storage management system of Claim 27, wherein each customer portal allows user control and configuration of a remotely located data storage system.

39. A method of managing a remotely located, independent data storage system, comprising:

collecting data regarding the status of one of the remotely located, independent data storage systems from the remotely located data storage system;

converting the collected data to a standardized format;

storing the standardized format collected data in a data repository of a central monitoring system, wherein the central monitoring system is located at a geographical location different from a geographical location of the remotely located data storage system; and

analyzing the collected data to identify data patterns that precede fault conditions at the remotely located data storage system.

40. The method of Claim 39, further comprising consolidating the collected data prior to storing the collected data in the data repository.

41. The method of Claim 40, wherein data is collected, converted to a standardized format, consolidated, and stored in a data repository of a central monitoring system by an agent system that communicates with the remotely located data storage system.

42. The method of Claim 39, wherein analyzing the collected data to identify data patterns that precede fault conditions at the remotely located data storage system is performed at the central monitoring system.

43. The method of Claim 41, wherein analyzing the collected data to identify data patterns that precede fault conditions at the remotely located data storage system is performed by the agent system.

44. The method of Claim 39, further comprising communicating corrective action information to a third party for implementation at the remotely located data storage system in response to identifying data patterns that precede fault conditions at the remotely located data storage system.

45. The method of Claim 41, further comprising communicating corrective action information to the remote agent system and wherein the remote agent system is configured to implement the corrective action in response thereto.

46. The method of Claim 41, wherein the agent system filters collected data prior to communicating the collected data to the central monitoring system to reduce an amount of data communicated to the central monitoring system.

47. The method of Claim 41, wherein the agent system comprises action logic that directs the agent system to perform one or more corrective actions at the remotely located data storage system in response to identifying a data pattern known to precede a fault condition.

48. The method of Claim 41, wherein the agent system collects data and storage hardware information from the remotely located data storage system.

49. The method of Claim 41, wherein the remote agent system comprises:

one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at the remotely located data storage system and convert data from the data source to the standardized format;

one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application;

one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and

an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store.

50. A computer program product for managing a remotely located, independent data storage system, the computer program product comprising a computer usable storage medium having computer readable program code embodied in the medium, the computer readable program code comprising:

computer readable program code that collects data regarding the status of one of the remotely located, independent data storage systems from the remotely located data storage system;

computer readable program code that converts the collected data to a standardized format;

computer readable program code that stores the standardized format collected data in a data repository of a central monitoring system, wherein the central monitoring system is located at a geographical location different from a geographical location of the remotely located data storage system; and

computer readable program code that analyzes the collected data to identify data patterns that precede fault conditions at the remotely located data storage system.

51. The computer program product of Claim 50, further comprising computer readable program code that consolidates the collected data prior to storing the collected data in the data repository.

52. The computer program product of Claim 51, wherein data is collected, converted to a standardized format, consolidated, and stored in a data repository of a central monitoring system by an agent system communicating with the remotely located data storage system.

53. The computer program product of Claim 50, wherein computer readable program code that analyzes the collected data to identify data patterns that precede fault conditions at the remotely located data storage system executes at the central monitoring system.

54. The computer program product of Claim 52, wherein computer readable program code that analyzes the collected data to identify data patterns that precede fault conditions at the remotely located data storage system executes at the agent system.

55. The computer program product of Claim 50, further comprising computer readable program code that communicates corrective action information to a third party for implementation at the remotely located data storage system in response to identifying data patterns that precede fault conditions at the remotely located data storage system.

56. The computer program product of Claim 52, further comprising computer readable program code that communicates corrective action information to the remote agent system and wherein the remote agent system is configured to implement the corrective action in response thereto.

57. The computer program product of Claim 52, wherein the agent system comprises computer readable program code that filters collected data prior to communicating the collected data to the central monitoring system to reduce an amount of data communicated to the central monitoring system.

58. The computer program product of Claim 52, wherein the agent system comprises computer readable program code that directs the agent system to perform one or

more corrective actions at the remotely located data storage system in response to identifying a data pattern known to precede a fault condition.

59. The computer program product of Claim 52, wherein the agent system computer readable program code that collects data and storage hardware information from the remotely located data storage system.

60. The computer program product of Claim 52, wherein computer readable program code at the remote agent system comprises:

one or more element information managers (EIMs), wherein each EIM is configured to communicate with a respective data source at the remotely located data storage system and convert data from the data source to the standardized format;

one or more service information managers (SIMs), wherein each SIM is configured to communicate with EIMs associated with a common data application;

one or more platform information manager (PIMs), wherein each PIM is configured to communicate with SIMs associated with a common data application platform; and

an activity director that is configured to communicate with each EIM, SIM and PIM and to instruct each EIM, SIM and PIM as to what information to collect and store.

EVIDENCE APPENDIX

No evidence is being submitted with this *Appeal Brief* pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.